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OF
PURDUE UNIVERSITY

VOL. X.

OCTOBER, 1909

No. 1



THE AGRICULTURAL EXPERIMENT STATION

ANNOUNCEMENT

OF

WINTER COURSES IN AGRICULTURE

COURSES OF STUDY

- 1. AGRICULTURE AND HORTICULTURE**
- 2. ANIMAL HUSBANDRY**
- 3. DAIRY HUSBANDRY**
- 4. DOMESTIC SCIENCE AND AGRICULTURE**

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CALENDAR 1909-1910

1909.

University opens Wednesday, September 8.
Special Course in Dairying, December 1-10.

1910.

The Farmers' Short Course, January 10-15 (Corn Growers' Association meeting January 12, 1910).
Winter Courses in Agriculture, Monday, January 17-March 11.
Commencement Day, Wednesday, June 8.

INSTRUCTORS IN THE WINTER COURSES IN AGRICULTURE.

WINTHROP ELLSWORTH STONE, Ph. D., LL. D., President of the University.

JOHN HARRISON SKINNER, B. S., Dean School of Agriculture, and Professor of Animal Husbandry.

CLARE NEWTON ARNETT, B. S., Instructor in Animal Husbandry.

ETHEL ESTHER BERRY, B. S., Assistant in Household Economics.

JESSE GEORGE BOYLE, B. S., Assistant in Horticulture.

SEVERANCE BURRAGE, S. B., Associate Professor of Sanitary Science.

HENRIETTA WILLARD CALVIN, B. S., Professor of Household Economics.

SAMUEL DICKEN CONNER, M. S., Instructor in Agricultural Chemistry.

STANLEY COULTER, Ph. D., LL. D., Dean School of Science, Professor of Biology.

CLEMENT ELLIS CRAIG, M. S. A., Assistant in Agronomy.

ROBERT ALEXANDER CRAIG, D. V. M., Professor of Veterinary Science.

OTIS CRANE, Instructor in Poultry.

PERRY HOWARD CRANE, B. S., Assistant in Dairying.

MARTIN LUTHER FISHER, B. S., Associate Professor of Agronomy.

WILLIAM MURRAY HEPBURN, M. A., B. L. S., Librarian.

OTTO FRED HUNZIKER, M. S. A., Professor of Dairying.

JOHN DE MOSS JARVIS, B. S. A., Instructor in Dairying.

HORACE CARTER MILLS, B. S., Assistant in Dairying.

WILLIAM McEWEN NYE, B. S., Assistant Professor of Farm Mechanics.

OLLIE EZEKIEL REED, B. S., Instructor in Milk Production.

WILLIAM WESLEY SMITH, M. S. A., Assistant Professor of Animal Husbandry.

JAMES TROOP, M. S., Professor of Horticulture and Entomology.

ALFRED THEODOR WIANCKO, B. S. A., Professor of Agronomy.

CHARLES GOODRICH WOODBURY, M. S., Associate Horticulturist.

GENERAL STATEMENT.

Farming is a business which requires careful study and business methods to make it profitable. Intelligent farming pays. Successful farming involves a knowledge of soil improvement, drainage, tillage, fertilization, and rotation of crops; the selection and improvement of corn, oats, wheat, and other farm seeds; methods of cultivation and the harvesting of such crops; the selection, feeding, breeding, improvement, management and sanitary care of live stock, as well as some knowledge of the dairy cow, the handling of milk and butter, the planting and care of orchards, small fruit and gardening. The truth of this statement is forcibly shown by the fact that hundreds of busy farmers who cannot leave their work for more than a week are annually taking advantage of the "Farmers' Short Course." Every young man or woman who expects to engage in farming or home-making should seek preparation for his or her business by taking a course in Agriculture or Household Science.

The "Winter Courses" are recommended to those young men and women who have not the preparation, time, or means to take a longer course. Men and women taking the Winter Courses in 1909 represented fifty-nine counties in Indiana, and three different states. These students ranged in age from eighteen to forty-five years and represented practically all systems of farming. Among the number were teachers, middle-aged men already engaged in farming, and young men just out of High School and ready to begin farming. The previous school training of the Winter Course students ranged from that received in the grades to that obtained in a four-year college course. The instruction is such as to meet the needs of all classes. Most of the Winter Course men are actively engaged in some line of agriculture in Indiana.

THE WINTER COURSES.

The Winter Course was first organized at Purdue University in 1888 to meet the needs of young farmers who could be spared from home, during winter, for a short period only. It has found

favor with many young men who either from lack of time or preparation have been unable to take the longer course. These courses have proved to be of great practical value to those ready to take up the operation and management of farms. Many successful young farmers and stockmen in the state today attribute their success to the instruction received in the Winter Course at Purdue. Others have found profitable employment on farms at wages considerably in advance of the average farm laborer. Former students consider the money spent in taking the Winter Course a most profitable investment. It is not only an inspiration to young men and women to become better farmers and better home-makers, but adds to their pleasure in the business of farming and home-making as they understand something of the various principles underlying their work; the Winter Course presents new and broader views of the farm and home, and makes better farmers and more useful citizens. The prime object of such courses is to help young men and women to produce better corn and live stock, better milk and butter, better fruit, and to make better homes and at the same time secure a greater profit from the time, energy, and money expended.

The instruction consists of lectures and laboratory exercises conducted by men and women who know the scientific as well as practical agricultural and household problems. The Winter Course students deal with the practical every-day problems of the farm in the classroom and laboratory, study soils, the movement of water and air in soils, judge grains, handle and judge live stock, practice grafting, budding, and pruning, judge fruit and vegetables, make up mixtures for spraying, test seeds for purity and germination, adjust and operate farm machinery, separate and test milk, make butter, ice-cream, and operate creameries, and thus get practical knowledge of these various materials and operations.

FOUR COURSES are offered, viz., Agriculture and Horticulture, Animal Husbandry, Dairy Husbandry, Domestic Science and Agriculture. These courses of eight weeks are purposely given during the winter months at a time when young men and women can be spared from the farm. Students are advised to take the course in Agriculture and Horticulture the first year and return and take one of the other courses which are more highly specialized the second year.

A suitable certificate will be granted students completing one of these courses.

COURSES OF INSTRUCTION.

Beginning January 17, 1910.

AGRICULTURE AND HORTICULTURE.

- | | |
|--------------------------------|--------------------------------------|
| 101. Farm Crops. | 106. Forestry. |
| 102. Soil Physics. | 107. The Dairy Cow and her Products. |
| 103. Agricultural Chemistry. | 108. Farm Sanitation. |
| 104. Agricultural Engineering. | 109. Poultry. |
| 105. Horticulture. | |

ANIMAL HUSBANDRY.

- | | |
|--------------------------|--|
| 201. Beef Cattle. | 206. Chemistry of Feeds and Feeding. |
| 202. Horses. | 207. Forage Crops and Pastures. |
| 203. Sheep. | 208. Soundness of Horses and Diseases of Farm Animals. |
| 204. Swine. | 209. Stock, Barns, Sheds, etc. |
| 205. Livestock Breeding. | |

DAIRY HUSBANDRY.

Two Courses Given. Subjects Common to Both.

- 301. Milk.
- 302. Testing Dairy Products.
- 303. Dairy Bacteriology.
- 304. Dairy Cattle.
- 305. Forage Crops and Pastures (207).

Farm Dairying.

- 325. Dairy Farm Management.
- 326. Farm Butter Making.
- 327. Dairy Farm Buildings and Machinery.
- 328. Pork Production.
- 329. Diseases of Dairy Cattle.

Creamery.

- 351. Creamery Butter Making.
- 352. Creamery Management.
- 353. Creamery Machinery and Repairs.
- 354. Ice-cream.

DOMESTIC SCIENCE AND AGRICULTURE.

Required Subjects.

- 401. Domestic Science.
- 402. Household Management.
- 403. Floriculture.

Elective Subjects.

- 404. Milk.
- 405. Farm Butter Making (326).
- 406. Horticulture (105).
- 407. Poultry (109).

COURSE IN AGRICULTURE AND HORTICULTURE.

Professor Wiancko in charge.

Professors Coulter, Craig, Hunziker and Troop; Associate Professor Fisher; Assistant Professor Nye; Instructors Boyle, Conner, Crane, and Woodbury.

This course is designed especially for those who expect to engage in farming. It deals with the care and fertilization of soils, the culture and management of the several crops of the farm and orchard, and the plant parasites and insects which prey upon them. Instruction is given in the intelligent care of farm animals, the operation and care of farm machinery, and the planning of farm buildings. Such special subjects as forestry, poultry, and dairying receive attention.

The classroom work, special readings, and laboratory exercises in this course will prove helpful, not only to those who personally perform operations in general farming, fruit growing, and poultry raising, but also to farm proprietors and farm managers.



THE SEED LABORATORY.

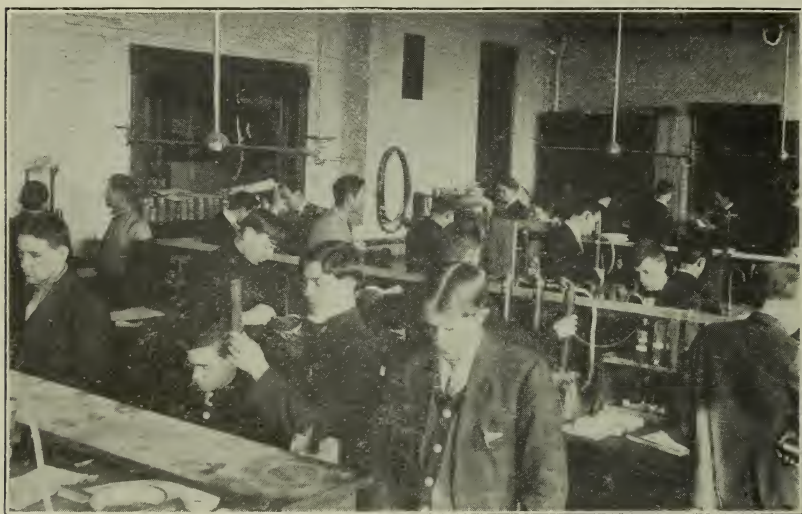
Students testing seeds for purity and germination.

DESCRIPTION OF SUBJECTS.

101. Farm Crops. (a) Lectures on the importance of good seed, its characteristics, selection, and preservation; the rotation of crops and the adaptation of cropping systems to various local conditions; characteristics, culture, and use of the common farm crops, such as corn, wheat, oats, potatoes, timothy, clover, and alfalfa. Attention is also given to the insect pests and plant diseases affecting these crops.

(b) Laboratory practice in testing seeds for vitality, and detecting impurities in clover and alfalfa seed; judging corn, oats, and wheat by the score card. Three lecture and four laboratory hours per week. Professor Fisher.

102. Soil Physics. (a) Lectures on the physical characteristics of the common soil types; best methods of cultivation and general treatment of soils for crop production; land drainage.



THE SOIL LABORATORY.

Students study the movement of water and air through soils, power of soils to hold water, effect of lime and many other soil problems.

(b) Laboratory exercises showing the behavior of the principal soil types under various conditions; the effects of loosening, packing, adding humus, etc., on the water-holding power of soils and the movements of water and air through soils; the effect of mulches in conserving soil moisture, etc.

Two lecture hours and four laboratory hours per week.

Professors Wiancko and Fisher.

103. Agricultural Chemistry. Lectures with readings and quizzes including

(a) **Soils.** Their composition, exhaustion, and improvement.

(b) **Crops.** Their composition, food requirements, and relation to different classes of soils.

(c) **Manures and Commercial Fertilizers.** Composition, production, pres-

ervation, reinforcement, and value of manures. Composition and source of commercial fertilizers, and their adaptation to different crops and soils. The excellent collection of fertilizer materials in the Experiment Station laboratory will be used for the purpose of illustration. Two lecture hours per week.

Mr. Conner.

104. Agricultural Engineering. (a) Farm Mechanics. Lectures on elementary mechanics and their application to farm machinery; practical draft problems, including the pulling power of the horse and the draft of loaded wagons under varying conditions, also various forms of eveners. The gasoline engine is also discussed. The laboratory work consists of rope splicing and work with the gasoline engine and some of the more important farm implements.

(b) Farm Buildings. Lectures on the location and design of the farm dwelling and barn, including heating, lighting, and ventilating systems. The



STUDENTS PREPARING BARN PLANS.

laboratory period is spent in the drawing-room working out practical problems in house or barn design. Three lecture and four laboratory hours per week.

Professor Nye.

105. Horticulture. A series of lectures on fruit and vegetable growing, including propagation, location of the orchard and garden, care and cultivation, crossing and hybridizing, pruning and spraying, thinning and harvesting; ornamental planting and embellishing of home grounds; also a discussion of beneficial and injurious insects, and fungous diseases in their relation to the orchard and garden (including the care and management of bees); insecticides and fungicides and other means of holding them in check; laboratory work in pruning and grafting, and in the preparation of spray mixtures.

Four lectures and four laboratory hours per week.

Professor Troop and Messrs. Boyle and Woodbury.



PRUNING FRUIT TREES.

Students are required to put the theory of pruning and grafting into practice in the orchard and laboratory.



WINTER COURSE STUDENTS RECEIVING INSTRUCTION IN GRAFTING.

106. Forestry. Lectures on the following topics: The meaning of forest and forestry; wood lots on farms and the relation of silviculture to agriculture and horticulture; the work of the forest in forming, improving and fixing the soil; the forest as a conservator of moisture; the formation of forests; discussion of forms suitable for planting in Indiana; silvical characters of these forms; time and method of planting.

The subjects will be treated with especial reference to conditions in Indiana and the central west, and will be as practical as the length of the course will permit. One lecture hour per week. Professor Coulter.

107. The Dairy Cow and Her Products. Instruction on breeds and types of dairy cows for the general farm; the care and feed of the dairy cow; the care of milk and cream on the farm; the use of the hand separator; the operation of the Babcock test; farm butter making, and markets for dairy products. Lectures and demonstrations. Two hours per week.

Professor Hunziker.

108. Farm Sanitation. This subject includes a series of lectures and quizzes and assigned reading.

(a) On the sanitary conditions about the home and their relation to the health of the family.

Two lecture hours per week first four weeks. Professor Burrage.

(b) The general sanitary conditions about the farm, stables and feed lots and their relation to the health and disease of the farm animals.

Two lecture hours per week second four weeks. Professor Craig.

109. Poultry. A series of lectures on the leading breeds and types of poultry; care and management of poultry; breeding, incubation, and brooding; feeding for growth and egg production; caponizing, fattening, and marketing; prevention of poultry diseases; poultry plants and the location, arrangement, lighting, ventilation, and construction of poultry houses; poultry raising as a specialty, and as an adjunct to farming. The lectures will be supplemented with frequent demonstrations and exercises in judging poultry. Three lecture hours per week.

Mr. Crane.

COURSE IN ANIMAL HUSBANDRY.

Professor Skinner in charge.

Professor Craig; Associate Professor Fisher; Assistant Professors Nye, and Smith; Instructors Arnett and Conner.

The work in Animal Husbandry is intended to give the student a knowledge of the importance, value and adaptation of the various classes and breeds of live stock; a practical knowledge of such principles of breeding, feeding, care, and management as can be clearly understood and made use of in actual farm practice, various methods of producing, finishing, and marketing live stock, including a discussion of relative cost, losses, and profits, information on methods of registering stock, pedigrees, etc.

Much time is given to practice in scoring and judging the



A feature of the work on beef production is a study of the carcass in the books and on the block. The dressing percentage of the steer, the amount and quality of the high price cuts, determine the value of the steer.

various classes and types of animals, thus training the student to be discriminating in the selection of animals for various purposes, such as breeding and feeding. This work will also familiarize him with the methods of judging animals as practiced in the show ring, at fairs, and other live stock shows.

The instruction is occasionally supplemented by visits to prominent breeding herds and flocks for the purpose of studying and judging different types of animals, studying methods of breeding and feeding, arrangement of barns and equipment.

The work is of a most practical character and suited to the needs of every young man who expects to handle live stock for breeding or feeding purposes, whether in a large or small way.

DESCRIPTION OF COURSES.

201. Beef Cattle and Beef. A study of the characteristics of the breeds and types of cattle suitable for beef production; different methods of growing, wintering, and feeding steers for market; by-products of the feed lot and slaughter house, and their relation to the cost of beef; the quality, cost, and value of various cuts of beef. Lectures, readings, scoring, and practice in judging feeders, fat steers, and breeding cattle. Two lecture and four laboratory hours per week.

Professor Skinner and Mr. Arnett.



JUDGING HORSES.

Much time is given to this kind of work in the Winter Course.

202. Horses. (a) Draft Horses. Characteristics of draft breeds, market types, and classes, their uses, value, production, and market demands.

(b) Heavy and Light Harness Horses. The breeds adapted to coach, carriage, and driving purposes; their characteristics, market demands, and values. Lectures, readings, and practice in scoring and judging. Two lecture and six laboratory hours per week.

Mr. Arnett.

203. Sheep. A study of the type and breeds of sheep; characteristics and adaptations; methods of mutton and wool production; feeding, breeding,



JUDGING SHROPSHIRE EWES.

Students are instructed in the selection of sheep for feeding and breeding.

and management; quality and value of mutton cuts; grades and classes of wool. Lectures, readings, and practice in scoring and judging various types. One lecture and four laboratory hours per week. Mr. Arnett.

204. Swine. A study of market types and breeds of swine, and the most successful methods of growing, feeding, and marketing; selection and management of breeding stock; lectures, readings, and practice in scoring and judging fat, bacon, and breeding types. Three lecture and four laboratory hours per week. Professor Smith.

205. Live Stock Breeding. A practical discussion of principles of breeding and mating; a study of systems of breeding, pedigrees, registration, etc. Lectures and readings. Two lecture hours per week. Professor Skinner.

206. Chemistry of Feeds and Feeding. A study of the composition of the animal body, composition and digestibility of feed stuffs, food requirements of animals, feeding standards and their use; the composition, value, and use of manures from different classes of animals. Two lecture hours per week. Mr. Conner.

207. Forage Crops and Pastures. A study of the principal plants used for forage, such as corn, sorghum, clover, alfalfa, cowpeas, soybeans, rape, millet and roots; their value, culture, adaptations, and use; the importance, value, and use of silage; permanent and temporary pastures. Two lecture hours per week. Professor Fisher.

208. Soundness of Horses and Diseases of Farm Animals. (a) Examination for Soundness. This course includes a study of the normal structure and conformation of the limbs, and the important unsoundnesses and blemishes. Regular clinics are given which afford opportunity for students to examine unsound horses and note the character of the different lamenesses and blemishes. First four weeks.

(b) **Care of Farm Animals.** The object of this work is to teach the stockman the means of preventing diseases; proper care and treatment of sick animals; the methods of confining animals for minor surgical operations. Last four weeks. Two lecture and two laboratory hours per week.

Professor Craig.

209. **Stock Barns, Sheds, Silos.** A study of the location, foundation, construction, arrangement, ventilation, sanitation, and lighting of stock barns; construction of silos, sheds, floors, stalls, and mangers. In this course a study is made of the merits and cost of the various materials and types of buildings. Two lecture hours per week.

Professor Nye.

COURSES IN DAIRY HUSBANDRY.

Professor Hunziker in charge.

Professor Craig; Assistant Professors Fisher, Nye, and Smith; Instructors Jarvis, Mills, and Reed; Assistant Crane.

Two distinct and separate courses of instruction are given.

1. FARM DAIRYING. The purpose of this course is to acquaint the student with the knowledge of producing, economically, milk that is clean and sanitary, and of making dairy butter of highest quality. Instruction is given in dairy breeds, the care, feeding, "grading up," and management of the dairy herd, the common diseases of dairy cattle, swine husbandry, soiling crops, the construction of barns and silos, the secretion, properties and ferments of milk, milk testing, the use of the farm separator, and farm butter making.

2. CREAMERY BUTTER MAKING. This course is designed especially for those who expect to engage in the manufacture of butter, cheese, and other dairy products. It deals with a study of the properties and ferments of milk, the construction and operation of power and turbine separators, the manufacture of butter, cheese, ice-cream, and condensed milk, the manipulation of the Babcock test and of moisture tests, butter and cheese scoring, creamery mechanics, creamery repairs, and creamery management.

INSTRUCTION. About one-third of each day is devoted to classroom work; the remainder of the time is spent in the creamery and dairy laboratories, in the dairy barn and stock-judging pavilion. In the laboratories the student is surrounded, as nearly as possible, with such conditions as will prepare him to meet existing conditions in practice. The instruction is supplemented by occasional visits to prominent dairy farms, model creameries, ice-cream plants, and other milk factories, for the purpose of studying methods and practices under varying conditions.

CERTIFICATES. Certificates will be awarded to students under the following conditions:

a. The student must successfully complete all subjects in the eight weeks' Winter Course in Creamery Butter Making or Farm Dairying.

b. The student must spend one successful season after completing the Winter Course—not less than six months of actual work—in a creamery (if a creamery student), or on a dairy farm (if a farm dairy student). During this time he must send a written report of his work to the Head of the Dairy Department each month and his factory or dairy must pass inspection.

c. Creamery students, in order to secure the certificate, must return to the University the next year after completing the Winter Course for a Special Course—two weeks—of instruction in advanced factory work.

The demand for first-class men who have this training by far exceeds the supply, a fact which enables us to assist most bright, earnest students in securing satisfactory positions.

DESCRIPTION OF COURSES.

Subjects Common to Both.

301. Milk. a. Lectures on its secretion, composition and properties; effect of period of lactation, feed and care of animals, on properties of milk and its products; dairy sanitation; the farm separator and gravity creaming; market milk; the business side of dairying; dairy laws.

b. Laboratory practice in the setting up, adjusting, operating and repairing of power, turbine and hand separators. Two lecture and four laboratory hours per week.

Professor Humziker and Messrs. Jarvis and Crane.



STUDENTS TESTING MILK.

302. Testing Dairy Products. a. Lectures on the Babcock test for milk, skim milk, buttermilk, cream, butter, cheese, ice-cream and condensed milk;

simple methods of standardizing milk and cream; modern methods of testing butter for moisture; acid tests for milk, cream and starters; the calculation of total solids, and tests for preservatives and adulterations of milk.

b. Laboratory practice in the operation of the Babcock test with milk, skim milk, buttermilk, cream, butter and ice-cream; testing butter for moisture; and the use of the lactometer. Two lecture and four laboratory hours per week. Professor Hunziker and Messrs. Jarvis and Crane.

303. Dairy Bacteriology. Bacteria, their source, characteristics, and control; milk fermentations and their prevention; effect of bacteria on quality of milk and milk products; bacteria as a factor in cream ripening and cheese curing. One lecture hour per week. Professor Hunziker.

304. Dairy Cattle. Differences in cows as shown by a study of the records of Indiana herds. Practical methods of testing; cow testing associations; grading up by use of pure bred dairy sires, and the co-operative ownership of dairy sires; the feeding, care and management of the herd for profitable production. Lectures, assigned readings, problems and judging. Three lecture and three laboratory hours per week. Mr. Reed.

305. Forage Crops and Pastures (207).

FARM DAIRY COURSE.

325. Dairy Farm Management. Instruction in keeping records and accounts of dairy farm transactions; labor and labor saving appliances; farm-grown feeds and their place in reducing cost of production; the fertility account of the dairy; some possibilities offered by dairying with good cows. Three lecture hours per week. Mr. Reed.



FARM DAIRY BUTTER LABORATORY.

Class in Farm Dairying. The Winter Course students in Farm Dairying receive thorough instruction in the theory and process of butter making.

326. Farm Buttermaking. a. Lectures on farm buttermaking, including methods of cream ripening, propagating of home-made and commercial starters, churning, washing, salting and working of butter, preparation for market, butter scoring.

b. Laboratory work in propagating starters, ripening cream, making butter under farm conditions and scoring butter by the use of the official score card. One lecture and four laboratory hours per week. Mr. Mills.

327. Dairy Farm Buildings and Machinery. a. Lectures on the location and design of dairy barns, dairy buildings and silos, including feed rooms, lighting, ventilating and sewer systems, water supply and yards; the operation of gasoline engines, small boilers, grinders and milking machines.

b. Laboratory practice in the use and repair of dairy machinery. Three lecture and five laboratory hours per week. Professor Nye and Mr. Mills.

328. Pork Production. A study of the market types and breeds of swine, and the most successful methods of growing and marketing; selection, and care of breeding stock. Lectures and reading. Three lecture hours per week.

Professor Smith.

329. Diseases of Dairy Cattle. The prevention and treatment of common diseases of dairy animals. One lecture hour per week. Professor Craig.

CREAMERY COURSE.

351. Creamery Buttermaking. a. Lectures in sampling, weighing and grading of milk and cream; the preparation of home-made and commercial starters; the pasteurization of milk and cream; cream ripening, churning, washing, salting, working, packing and marketing; the composition of butter; conditions controlling the per cent of moisture in butter and the per cent of overrun.

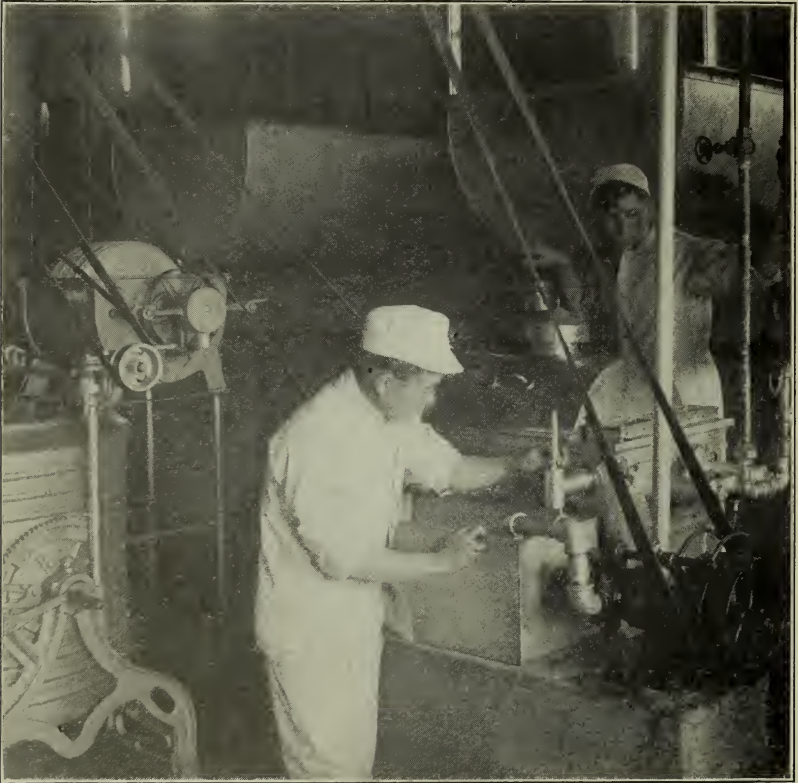


THE CREAMERY.

The students in creamery butter making are given practice in a well equipped commercial creamery as well as the creamery laboratory.

b. Laboratory practice in sampling, weighing, grading of cream and testing milk and milk products with the Babcock test; preparation, propagation, scoring and use of home-made and artificial starters; pasteurization of milk and cream, cream ripening, the operation of different makes of churns and workers, packing and printing butter for market, testing butter for moisture, and butter scoring. Two lecture and nine laboratory hours per week.

Mr. Jarvis.



WINTER COURSE CREAMERY STUDENTS PASTEURIZING.

352. Creamery Management. A study of the location, construction, equipment and general arrangement of the creamery; methods of organizing creamery companies; creamery supplies and butter markets; daily routine work; instruction and practice in simple methods of keeping accounts, apportionment of dividends, making up pay-rolls, milk sheets, statements, and checks. Three lecture hours per week.

Mr. Jarvis.

353. Creamery Machinery and Repairs. a. Discussion of construction of boilers, engines, lubricators, flue cleaners, injectors, governors, pumps and valves; grades of coal, and economy in firing; calculation of speed and size of pulleys and belts.

b. Laboratory practice. Practical work in the care and repairs of boilers, engines, valves, pumps and creamery and dairy machinery; belt lacing, pipe fitting, adjustment of pulleys, soldering. Two lecture and six laboratory hours per week.

Professor Nye and Mr. Mills.

354. Ice-cream. Instruction and practice in the manufacture of ice-cream and fruit ices adapted for creamery purposes. This includes the preparation of cream, mixing of flavors and fillers, the operation of the freezer, packing, storing and marketing of ice-cream. Two laboratory hours per week.

Mr. Jarvis.

COURSE IN DOMESTIC SCIENCE AND AGRICULTURE.

Professor Calvin in charge.

Professors Hunziker and Troop; Instructor Crane; Assistant Miss Berry.

The Winter Course in Domestic Science and Agriculture is arranged with special reference to the needs of the actual or prospective homemaker and housekeeper.

The chief aim of the course is to throw light on many of the every-day, practical problems that confront the woman who is mistress of the home and performs or directs the work of the household.

The instruction is suited to the needs of those living on farms and in the villages who have not had the advantages of higher education. The fundamental principles are briefly but clearly explained so that the student may be better prepared to assume the responsibilities and discharge the duties of the homekeeper.

Young women over eighteen years of age (single or married), who may be unable to take a longer course, will find in the Winter Course in Domestic Science and Agriculture much bearing on the work of homekeeping that will prove interesting, instructive and practically helpful.

Those intending to enter the Winter Course in Domestic Science and Agriculture must make application to the Dean of the School of Agriculture on or before December 1, 1903.

DESCRIPTION OF SUBJECTS.

401. **Domestic Science.** Lectures and discussions concerning the methods of cookery, dietetic and economic values of various foods. The fundamental rules relating to food and its preparation will be explained and reasons for all processes carefully demonstrated. Two-thirds of the time will be devoted to actual preparation of foods. Special stress will be placed upon the best methods of preparing, cooking and serving cereals, meats and breads. The effect of the course will be to teach a love for home duties and a just appreciation of their importance. Five lecture and ten laboratory hours per week.

Professor Calvin and Miss Berry.

402. **Household Management.** Lectures covering the construction of a sanitary home as to site, building materials, plans, heating, lighting, and disposal of household waste; furnishings from the sanitary, economic, and artistic

viewpoints. The expenditure of the income, and household accounts together with the planning of the daily duties and general care of the home will receive attention. Five lecture hours per week. Professor Calvin and Miss Berry.

403. Floriculture. The selection and planting of trees, shrubs, vines, foliage and flowering plants for the home; preparation and fertilization of the soil: propagation of plants from seeds, roots, tubers, bulbs and cuttings; planting, transplanting, watering, pruning, training, fumigating, spraying, etc. Two lecture hours per week. Professor Troop.

404. Milk. a. Lectures on its composition, properties, care and handling; milk fermentations, milk testing with the Babcock test, the use of the farm separator.

b. Laboratory practice in testing milk and cream for butter fat and in the operation of farm separators. Two lecture and two laboratory hours per week. Professor Hunziker.

405. Farm Buttermaking (326).

406. Horticulture (105).

407. Poultry (109).

GENERAL INFORMATION.

ADMISSION. Applicants for admission to the Winter Course must be at least eighteen years of age and have a good common school education. No entrance examination is required. Experience has shown that persons at twenty or more years of age, who have had practical experience in farming, do the best work, derive the most good from the course, and are best pleased with what they learn.

REGISTRATION. Students will register and secure rooms and board on Monday, January 17, and recitations will begin at 8 a. m., Tuesday, January 18, continuing without intermission until the close of the term, March 11th. Those who expect to attend should promptly fill out and return the enclosed application blank. Students should come direct to Room 109 in the Agricultural Building, and register before engaging rooms or purchasing books.

EXPENSES—

Tuition is free to residents of Indiana.

Nonresidents will pay a tuition fee of \$10.

All students will pay a laboratory fee of \$5, to cover in part the expenses of material used in laboratory courses.

An incidental and library fee of \$10 is chargeable to students who are not exempted from same by an appointment to a free scholarship. (See next page.)

OTHER EXPENSES—

Books will cost from \$5 to \$10.

Furnished rooms, two in room, \$1 to \$1.50 each per week.

Table board, \$3 to \$3.50 per week.

A fair estimate of expense for an Indiana student follows :

Room rent (8 weeks at \$1.25 per week).....	\$10 00
Board (8 weeks at \$3.50 per week).....	28 00
Incidental fee (for those without scholarships).....	10 00
Laboratory fee	5 00
Books (largely optional).....	10 00
Visits of inspection and miscellaneous expenses (optional with the student)	12 00
Total	\$75 00

FREE SCHOLARSHIPS.

TWO FREE SCHOLARSHIPS are offered to each recognized active farmers' organization in Indiana. This includes agricultural and horticultural societies, county and district fair associations, recognized farmers' clubs, granges, county farmers' institute associations, and county woman's auxiliaries. Candidates for free scholarships should be elected at a meeting of the organization, provided the same is held before the opening of the term. In case no meeting is held in time the officers may appoint.

These scholarships, which are open alike to young men and women, are good in any of the Agricultural Courses for the year ending June 30th, after the date of issue, but are not valid unless applied for before, and presented at time of registration in the University. They will effect a saving to the student of \$10 per term in the Winter Course and \$35 per year in the Four-Year Course in Agriculture.

Students desiring scholarships should make written application to the Chairman of the County Institute, Woman's Auxiliary, or other farmers' association, at an early date.

CERTIFICATES.

Students who satisfactorily complete one of the courses described in this circular will receive a Winter Course Certificate, except in the Dairy courses, where a period of successful practice and Special Course are required. See p. 17. A candidate for a certificate must receive passing grades in all subjects of his course and be present at the last session of his class.

THE WINTER COURSE SOCIETY organized and conducted by Winter Course students meets weekly in the Agricultural building. Winter Course students who are members of this Society may obtain practice in speaking, writing, and parliamentary drill. Various agricultural topics of vital interest to students and farmers are discussed at these meetings. Frequent addresses are given before the Society by members of the Faculty and prominent men throughout the state. Agricultural students are urged to avail themselves of this opportunity.

The Purdue Agriculturist, a monthly paper edited and published by the agricultural students, secures most of its contributions from agricultural students and thus offers an excellent op-

portunity for those who wish to secure training in writing articles for local and agricultural papers.

For information concerning Agricultural Courses address,

Dean, JOHN H. SKINNER,
Purdue University, LaFayette, Ind.

For general information concerning the University or for catalog, address

President, W. E. STONE,
Purdue University, LaFayette, Ind.

GENERAL STATEMENT CONCERNING PURDUE UNIVERSITY.

Purdue University is located about one mile west from the Court House in the city of LaFayette. The situation is beautiful and healthful and conditions are favorable to study. The students' literary and technical societies, the Young Men's Christian Association, the University Lecture Course, and an excellent gymnasium and athletic field all contribute to the development of manly character and the maintaining of healthy minds and bodies.

The following Four Years' Courses of Study, leading to the degree of B. S., are offered, viz.: (1) Agriculture; (2) General Science, including Household Economics; (3) Mechanical Engineering; (4) Civil Engineering; (5) Electrical Engineering. (6) Chemical Engineering.

A two years' course in Pharmacy is offered.

COURSES IN AGRICULTURE.

1. A Regular Course of Four Years.
2. Winter Courses of Eight or Ten Weeks.
3. Short Special Courses of Ten Days or more.
4. A Farmers' Short Course of One Week.

Provision is made for special students in Agriculture.

Graduates from the commissioned high schools of Indiana are admitted without examination to the Freshman class in all four-year courses. All others must pass the entrance examinations.

For further information and catalog, address,

PRESIDENT PURDUE UNIVERSITY,
LaFayette, Ind.



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